WASHINGTON STATE DEPARTMENT OF ECOLOGY
POST OFFICE BOX 47600
OLYMPIA, WASHINGTON 98504-7600

IN THE MATTER OF:	**]**	
	]	
Northwest Pipeline Corporation	**]**	**NO. PSD-01-08 First Amendment**
Sumas Compressor Station	**]**	
Williams Gas Pipeline - West	**]**	**FINAL APPROVAL**
295 Chipeta Way	**]**	**OF PSD APPLICATION**
Salt Lake City, UT 84158-0900	**]**	

This approval is issued pursuant to the United States Environmental Protection Agency (EPA) regulations for the Prevention of Significant Deterioration (PSD) set forth in Title 40 Code of Federal Regulations Part 52, and regulations set forth in the Washington Administrative Code 173-400-141. The approval is based upon the complete application submitted by Williams Gas Pipeline - West for the Northwest Pipeline Corporation Sumas Compressor Station dated November 27, 2001, along with additional information dated February 6, February 22, April 4, May 23, August 6, and August 16, 2002. First Amendment is based on a letter of request dated April 23, 2004. The technical analysis performed by the Department of Ecology (Ecology) finds the following:

FINDINGS:

1. The reason for this administrative amendment is that Northwest Pipeline Corporation (NWP) and Ecology have discovered the inability of the Predictive Emissions Monitoring System (PEMS) to accurately predict real-time emissions. This finding is based upon completion of one year of PEMS data gathering and analysis, and Ecology agreed with NWP. There is no change to emission limits in this amendment. Therefore, public notice is not required.
2. Pursuant to the original permit, NWP expanded their existing Sumas Compressor Station (Sumas Station). The Sumas Station is located at 49ºN 00’05” latitude, 122ºW 13’19” longitude, which is approximately 3 kilometers east of Sumas, Washington in Whatcom County, and immediately south of the U.S. Canadian border. It has UTM coordinates of 557.0 kilometers East and 5,427.5 kilometers North.
3. The Sumas Station is located within a Class II area that is currently designated in attainment for all national and state air quality standards. The nearest Class I area, the North Cascades National Park, is approximately 50 kilometers east. PSD-01-08 allowed an expansion to this facility described in findings 4 through 15 below.
4. Pursuant to the original permit, NWP replaced the engines from two existing compressor turbines as well as add new equipment to the Sumas Station. The project consisted of:

    4.1. Add one new Solar Mars 90S turbine driven centrifugal compressor (site rated at 12,841 horsepower @ 59ºF).

4.2. Replace the engines of the two existing Solar Mars turbines with new; lower emitting Mars 90S engines (each site rated at 12,841 horsepower @ 59ºF). This replacement generates pollution netting credits.

4.3. Add one natural gas fired Caterpillar 270 kilowatt (kW) generator unit for backup power. This unit is proposed to run a maximum of 500 hours per year.

4.4. Add one natural gas fired Sellers C60 boiler/heater rated at 2.5 million British Thermal Units per hour.

5. Because the Sumas Station is an existing major stationary source, any modification resulting in a net emissions increase of a regulated pollutant greater than its Significant Emission Rate qualifies the proposed project as a major modification. [WAC 173-400-113(1)(a), WAC 173-400-113(1)(b), WAC 173-400-113(1)(c), and WAC 173-400-113(1)(d)]. As a result, the project would be subject to PSD review under WAC 173-400-141 for that pollutant. Additionally, the project is subject to federal PSD review because it qualifies as a major modification under federal rules [40 CFR 52.21(b)(2)(i), 40 CFR 52.21(b)(3)(i), and 40 CFR 52.21(b)(23)(i)].

6. Potential regulated pollutants for the proposed project are shown in Table 1. They are nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic carbon compounds (VOC), particulates less than 10 microns in diameter (PM_{10}), and particulates of any diameter (PM). For this project, all PM is considered to be PM_{10}.

Table 1: Total Criteria Pollutant Potential to Emit (PTE) For New Equipment

Pollutant	Total of 3 Mars 90 Turbines (tpy)	Generator (tpy)	Boiler (tpy)	Total PTE From Proposed New Equipment (tpy)	PSD Significant Emission Rate (SER) (tpy)
NO_x	126.0[a]	0.03	1.08	127.1	40
CO	139.5[b]	0.13	0.91	140.5	100
SO_2	4.47	0.00042	0.01	4.48	40
VOC	9.12	0.02	0.06	9.20	40
PM_{10}	8.68	0.01	0.08	8.77	15
PM	8.68	0.01	0.08	8.77	25

a. Annual Potential to Emit of NO_X of each turbine limited to 42 tons per year.

b. Annual Potential to Emit of CO of each turbine limited to 46.5 tons per year.

7. A netting analysis for CO and NO_x compared the potential emissions from the proposed project against the actual emissions of the removed equipment. No other contemporaneous increases or decreases were found. The netting analysis determined that CO is the only pollutant that has a significant net emissions increase. Emissions of CO will be subject to PSD Review. Table 2 shows these figures.

Table 2: Significant Net Emission Increases as the Result of the Proposed Project

Pollutant	Past Actual Emissions 1/99 to 12/00 (Removed Unit #7 & #8) (tpy)	Total Potential to Emit (New Equipment) (tpy)	Net Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	PSD Significant?
NO_x	89.9	127.1	37.2	40	No
CO	8.5	140.5	132.0	100	Yes

8. The emissions of all air pollutants from the proposed modification are subject to review under Chapter 173-400 WAC, Chapter 173-460 WAC, and the regulations of the Northwest Air Pollution Authority (NWAPA). Chapter 173-400 WAC includes provision for PSD review (WAC 173-400-141). This permit considers only PSD applicable pollutants. All other air quality related notice of construction approval issues are subject to permitting by NWAPA. The NWAPA approval will contain federally enforceable NO_X provisions including annual limits totaling 127.1 tons per year that ensure compliance with the project's NO_X netting analysis.
9. The conditions of the existing PSD-92-4 Amendment 1 are not altered by this PSD approval.
10. There are no NSPS requirements for CO emissions from the proposed project equipment.
11. Only natural gas will fuel the proposed equipment.
12. Best Available Control Technology (BACT) determinations for CO emissions are:
    - 12.1. Good Combustion Practices for the Mars 90S turbines.
    - 12.2. Three-way non-selective catalyst for the Caterpillar 270 kW backup generator.
    - 12.3. Good Combustion Practices for the Sellers C60 boiler/heater.
13. Allowable emissions from the new emissions units will not cause or contribute to air pollution in violation of:
    - 13.1. Any ambient air quality standard.
    - 13.2. Any applicable maximum allowable increase over the baseline ambient concentration.
    - 13.3. Any National Ambient Air Quality Standards (NAAQS) or PSD increment consumption. Modeling to determine impacts was not required because the applicant demonstrated the impacts to be below modeling significance thresholds.
    - 13.4. Any visibility impacts. Visibility impact analysis is not required for CO.
14. Deposition of PSD pollutants on soils and vegetation in Class I or Class II areas is not affected by CO.
15. No significant effect on industrial, commercial, or residential growth in the Sumas, Washington area is anticipated as a result of this project.
16. Ecology finds that all requirements for PSD have been satisfied. Approval of the PSD application is granted subject to the following conditions.

APPROVAL CONDITIONS:

1. The Mars 90S turbines, the standby generator, and the boiler/heater shall only burn natural gas.
2. The Caterpillar 270 kW standby generator:
   2.1. The standby generator shall be operated no more than 500 hours in any consecutive 12-month period.
   2.2. Compliance with Condition 2.1 shall be determined by installing and operating a nonresettable hour meter with monthly recording of the operating hour meter reading to determine the operating hours, or by automated data collection.
   2.3. A three-way catalytic converter shall be installed on the standby generator. It shall be Model EQ-601-08-C2 or another model that is approved by Ecology in writing prior to installation.
   2.4. Initial compliance with Condition 2.3 shall be determined by a source test for CO within 180 days of the generator being placed in service. The source test shall use EPA Reference Method 10 (40 CFR Appendix A) or an alternate method approved by Ecology. NWP shall submit a test plan to Ecology and NWAPA for Ecology's approval at least 30 days prior to testing.
3. The Sellers C60 boiler/heater:
   3.1. The CO emissions shall be reported as per Condition 9.2, and calculated using AP 42 emission factors or other methods agreed to in writing by Ecology.
4. NWP shall keep a record of the number of turbine startup and shutdown events.
5. Emissions of CO from each combustion turbine are limited as follows:
   5.1. Volume percent CO of not greater than 50 parts per million dry volume (ppmdv) over a three hour average corrected to 15 percent O_2
   5.2. Mass emission of CO not greater than 14 pounds per hour (lb/hr) per turbine on a three hour average.
   5.3. Mass emission of CO not greater than 46.5 tons per turbine for any consecutive 12 month period.
   5.4. NWP shall demonstrate initial compliance with Condition 5.1 and Condition 5.2:
      5.4.1. Within 180 days after initial startup.
      5.4.2. In accordance with 40 CFR 60 Appendix A, Method 10 except that the instrument span shall be reduced as appropriate. Testing shall be performed by an independent testing firm.
      5.4.3. NWP shall submit a test plan to Ecology and NWAPA for approval at least 30 days prior to testing.

5.5. Compliance monitoring:

5.5.1. NWP shall monitor compliance with Conditions 5.1 and 5.2 by measuring the CO concentration of the turbine exhaust stack not less frequently than 336 hours of turbine operation. After one year of test results within the permit limits, NWP may reduce the testing frequency to once per month.

5.5.1.1. NWP may conduct these measurements by use of a portable CO analyzer capable of adjustment to the 15 percent oxygen concentration basis, and verify as accurate in accordance with the process outlined in Condition 6.

5.5.1.2. Testing shall be in accordance with USEPA Designated Conditional Test Method 34. An alternate test method may be used if approved in writing by Ecology prior to the test.

5.5.1.3. After one year of test results within the permit limits, NWP may reduce the testing frequency to not less frequently than once every 672 hours. If tests ever fail to meet the compliance limit, Ecology may require testing at the original frequency.

5.5.1.4. NWP shall perform three consecutive tests using the portable analyzer. If the average of the three test results indicates noncompliance with Condition 6, NWP shall continue testing at least every 15 minutes until one hour of testing has been completed. If at the end of one hour of testing, the average of the test results show noncompliance, NWP shall shutdown the unit as soon as is practical and contact the NWAPA as promptly as possible and in no event more than 12 hours later. However, if data shows compliance with Condition 6, no action is required other than reporting as specified in Condition 9.3.6.7.

5.5.2 Within twenty days of the end of each month, pursuant to Condition 5.3, NWP shall determine the tons of CO emissions from each of the turbines for the most recent consecutive twelve months. For this calculation, NWP shall utilize a time-weighted average of the relevant stack test results wherein the results of each source test shall be the presumed emission rate until the next source test.

6. NWP shall verify the accuracy of any portable CO analyzers used to satisfy the monitoring requirements of this permit no less than once every calendar year.

6.1. Compliance shall be demonstrated in accordance to 40 CFR 60 Appendix A, USEPA Method 10.

6.2. NWP shall use Condition 6.1 to verify the accuracy of any portable NO_X analyzer prior to its use in satisfaction of the monitoring requirements of this permit.

6.3. Not less than once every calendar year, NWP shall use the approved protocol from Condition 6.1 to verify the accuracy of any portable NO_X analyzer intended to be used in satisfaction of the monitoring requirements of this permit.

6.4. NWP shall keep records of the CO analyzer accuracy verifications on site for not less than five years for Ecology or NWAPA review.

7. NWP shall provide safe access and sampling ports for source testing or compliance determination for the standby generator, the heater/boiler, and each turbine being installed for this project:

   7.1. Safe access for the standby generator and the heater/boiler shall consist of scaffolding, a man lift, or other access arrangements acceptable to Ecology.

   7.2. Safe access for the Mars 90S turbine shall consist of permanently constructed platforms on the respective stacks with sampling ports that meet the requirements of 40 CFR 60, Appendix A, Method 20.

   7.3. Other arrangements may be acceptable if approved by Ecology prior to installation.

8. NWP shall notify Ecology and NWAPA when construction commences on each of the turbines, the generator unit, and the boiler/heater, and when each is placed into service.

9. NWP shall report the monitoring and process data from the Sumas Station to Ecology and NWPA not less than once each calendar quarter or on another reporting schedule approved by Ecology, and in the format approved by Ecology. The reports shall include, but not necessarily be limited to the following:

   9.1. For the standby generator: Total hours of operation for the twelve immediately preceding months.

   9.2. For the Sellers C60 boiler: Total monthly CO emissions.

   9.3. For each combustion turbine stack:

      9.3.1. All exhaust stack CO concentrations since the last report pursuant to measurement under Condition 5.5.1.

      9.3.2. The total CO mass emissions for the 12 immediately preceding months.

      9.3.3. Report any scheduled portable analyzer tests that were not completed. Include:

         9.3.3.1. Reason for not completing the test.

         9.3.3.2. Description of corrective actions taken.

      9.3.4. Results of any compliance monitoring source tests performed since the last report including annual verification of the accuracy of CO concentration portable analyzers (Condition 6).

      9.3.5. Results of any compliance monitoring source tests performed since the last report including annual verification of the accuracy of CO concentration portable analyzers (Condition 6).

      9.3.6. For each occurrence of CO monitored emissions in excess of the concentration limits or mass limits, report the:

         9.3.6.1. Time of the occurrence.

         9.3.6.2. Magnitude of the emission or process parameters excess.

         9.3.6.3. The duration of the excess.

         9.3.6.4. The probable cause.

9.3.6.5. Corrective actions taken or planned.

9.3.6.6. Any other agency contacted.

9.3.6.7.For each occurrence of extended (1-hr) CO monitoring as per Condition 5.5.1.4 that ultimately shows compliance with Condition 6, include: (1) detailed test result and (2) detailed emission unit operating data during the test.

9.4. NWP shall maintain Sumas Station monitoring and process records for at least five years.

9.4.1. NWP shall inform Ecology and NWAPA on the location of the monitoring and process records.

9.4.2. NWP shall provide Ecology and NWAPA with the monitoring and process records for any period within the five year archive within ten working days of the request.

9.4.3. The monitoring and process records maintained in the five year archive shall include but not necessarily be limited to the following:

9.4.3.1. Fuel monitoring records.

9.4.3.2. Operating hour records.

10. An Operation and Maintenance (O&M) Equipment Manual for the facility must be developed and maintained.

10.1. Within 90 days of startup, NWP shall identify operational procedures for the standby generator, Sellers C60 boiler, and combustion turbines that constitute proper operation relative to compliance with the emission limitation conditions of this permit.

10.2. NWP shall include these operational procedures in the Sumas Station O&M Equipment Manual. As a minimum, these shall include:

10.2.1. Manufacturers' operating instructions and design specifications.

10.2.2. Normal operating parameters and design specifications.

10.2.3. Updates to reflect any modifications of the equipment or its operating procedures.

10.3. NWP shall keep the Sumas Station O&M Equipment Manual up to date.

10.4. NWP shall assure that the Sumas Station O&M Equipment Manual is readily available at the facility for review by state, federal and local agencies.

11. Nothing in this determination shall be construed so as to relieve NWP of its obligations under any state, local, or federal laws or regulations.

12. NWP shall permit the Environmental Protection Agency, State, and local regulatory personnel access to the source upon request for the purposes of compliance assurance inspections. Failure to allow such access is grounds for an enforcement action.

13. This Approval shall become invalid if construction of the project is not commenced within eighteen (18) months after receipt of the final approval, or if construction of the facility is discontinued for a period of eighteen (18) months, unless NWP extends the 18-month period

upon satisfactorily showing that an extension is justified pursuant to 40 C.F.R. 52.21(r)(2) and applicable EPA guidance.

Reviewed by:

07/15/04

Tapas K. Das, P.E., Project Engineer
Technical Services Section
Air Quality Program
Washington State Department of Ecology

Date

EXPIRES 08-16-04

Approved by:

7/15/04

Stu Clark, Program Manager
Air Quality Program
Washington State Department of Ecology

Date